

## CLAIMS

1. An aircraft, further comprising:

a keel;

a tail assembly attached to the keel;

a slider slidably attached to the keel such that the slider can move longitudinally in relation to the keel;

at least a first and second dual axis wings, the dual axis wings pivotably attached to the slider such that the wings may pivot on the slider in a substantially longitudinal direction; and

control means attached to the dual axis wings such that the dual axis wings can be pivoted from a substantially flared position to a substantially swept position as the slider is moved longitudinally under control of the control means;

whereby the dual axis wings pivot as they move longitudinally.

2. An aircraft, as in claim 1, wherein the control means further comprises:

a control bar attached at a first end to a first dual axis wing and attached at a second end to a second dual axis wing; and

means to pivot the control bar at a pivot point such that movement of the control bar about the pivot point causes the dual axis wings to pivot on the slider and causes the slider to move longitudinally.

3. An aircraft, as in claim 2, wherein:

the control bar is split into a first control arm attached to the first dual axis wing and a second control arm attached to the second dual axis wing;

whereby the control arms can independently pivot the first and second dual axis wings on the slider.

15  
4. An aircraft, as in claim 13, wherein the control means further comprise at least one powered wing actuator attached to each of the dual axis wings such that when the powered wing actuator is activated, its respective dual axis wing will pivot on the slider and the slider will move longitudinally.

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5. An aircraft, as in claim 1, wherein the slider is attached to the keel such that it can rotate laterally in relation to the keel;

whereby the dual axis wings can slide longitudinally, pivot longitudinally, and rotate laterally.

6. An aircraft, as in claim 5, wherein the slider is split into a first slider segment attached to the first dual axis wing and a second slider segment attached to the second dual axis wing, each slider segment capable of at least partial independent lateral rotation in relation to the keel under control of the control means;

whereby the dual axis wings can be independently rotated on the slider segments.

7. An aircraft, as in claim 6, wherein the control means further comprises a powered wing actuator, the powered wing actuator having means to rotate the dual axis wings.

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8. An aircraft, as in claim 5, wherein the slider is split into a first slider segment attached to the first dual axis wing and a second slider segment attached to the second dual axis wing, each slider segment capable of independent longitudinal motion in relation to the keel, and each dual axis wing capable of independent pivoting on its respective slider segment;

whereby the dual axis wings can be independently moved from a flared to a swept position.

9. An aircraft, as in claim 8, wherein each slider segment is capable of at least partial independent lateral rotation in relation to the keel under control of the control means;

whereby the dual axis wings can be independently rotated on the slider segments.

10. An aircraft, as in claim 9, wherein the control means further comprises a powered wing actuator, the powered wing actuator having means to rotate the dual axis wings.

11. An aircraft, as in claim 5, wherein the tail assembly is rotatably attached to the keel, the rotation of the tail assembly further being independent of the dual axis wings.

12. An aircraft, as in claim 5, wherein the dual axis wings are attached to the slider with hinges such that the dual axis wings are capable of independent rotation in relation to the keel;

whereby the dual axis wings can slide longitudinally and pivot longitudinally while rotating laterally via the hinges.

13. An aircraft, as in claim 1, wherein the tail assembly is rotatably attached to the keel, the rotation of the tail assembly further being independent of the dual axis wings.

25

14. An aircraft, as in claim 1, wherein the slider is split into a first slider segment attached to the first dual axis wing and a second slider segment attached to the second dual axis wing, each slider segment capable of independent longitudinal motion in relation to the keel, and each dual axis wing capable of independent pivoting on its respective slider segment;

whereby the dual axis wings can be independently moved from a flared to a swept position.

15. An aircraft, as in claim 14, wherein the control means further comprises a powered wing actuator, the powered wing actuator having means to pivot the dual axis wings and longitudinally move the slider.

16. An aircraft, as in claim 1, further comprising:

a bungee launch assist cord, the bungee launch assist cord attached to the aircraft at one end and having means to attach to a first fixed object at the other end;

release means to releasably secure the aircraft to a second fixed object;

tensioning means to apply tension to the bungee launch assist cord after it is attached to the first fixed object, the bungee launch assist cord and the release means secure the aircraft attached to the aircraft such that tension applied to the bungee launch assist cord is balanced by the release means;

means to release the release means after tension is applied to the bungee launch assist cord such that the tension from the bungee launch assist cord accelerates the aircraft;

means to release the bungee launch assist cord;

whereby the bungee launch assist cord creates forward motion and assists in the launch of the aircraft from a substantially flat surface.

<sup>18</sup>  
~~17~~. An aircraft, as in claim <sup>17</sup>~~16~~, further comprising a bungee retractor attached to the aircraft and the bungee launch assist cord, the bungee retractor having means to retract the bungee launch assist cord after it is released.

<sup>19</sup>  
~~18~~. An aircraft, as in claim <sup>13</sup>~~12~~, further comprising a propulsion unit attached to the aircraft, the propulsion unit having means to provide at least a portion of the forward thrust required to maintain flight.

<sup>20</sup>  
~~19~~. An aircraft, as in claim <sup>19</sup>~~18~~, wherein the propulsion unit is a propeller driven engine.

<sup>21</sup>  
~~20~~. An aircraft, as in claim <sup>19</sup>~~18~~, wherein the propulsion unit is a jet.

<sup>22</sup>  
~~21~~. An aircraft, as in claim <sup>19</sup>~~18~~, wherein the propulsion unit is a ducted fan.

<sup>23</sup>  
~~22~~. An aircraft, further comprising:

a fuselage;

a tail assembly attached to the fuselage;

a slider slidably attached to the fuselage such that the slider can move longitudinally in relation to the fuselage;

at least a first and second dual axis wings, the dual axis wings pivotably attached to the slider such that the wings may pivot on the slider in a substantially longitudinal direction;  
and

control means attached to the dual axis wings such that the dual axis wings can be pivoted from a substantially flared position to a substantially swept position as the slider is moved longitudinally under control of the control means;

whereby the dual axis wings pivot as they move longitudinally.

23. An aircraft, as in claim 22, wherein the slider is split into a first slider segment attached to the first dual axis wing and a second slider segment attached to the second dual axis wing, each slider segment capable of independent longitudinal motion in relation to the keel, and each dual axis wing capable of independent pivoting on its respective slider segment;

whereby the dual axis wings can be independently moved from a flared to a swept position.

24. An aircraft, as in claim 23, wherein the control means further comprises a powered wing actuator, the powered wing actuator having means to pivot the dual axis wings and longitudinally move the slider.

25. A sailcraft, further comprising:

at least one hull;

a keel attached to the hull;

a slider slidably attached to the keel such that the slider can move longitudinally along at least a portion of the keel, the slider further capable of lateral rotation on the keel;

at least a first and second dual axis wings, the dual axis wings pivotably attached to the slider such that the wings may pivot on the slider in a substantially longitudinal direction;

tilt and rotate means to tilt and rotate the first and second dual axis wings in relation to the hull; and

control means attached to the dual axis wings such that the dual axis wings can be moved from a flared position to a swept position by pivoting the dual axis wings on the slider under control of the control means, and further, the control means attached to the dual axis wings such that the dual axis wings can be rotated on the keel;

whereby the dual axis wings are simultaneously pivot on the slider while the slider moves longitudinally, and the dual axis wings tilt and rotate in relation to the hull.